Adaptation of a GAD Treatment for Hypochondriasis

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Health preoccupations are present in both generalized anxiety disorder (GAD) and hypochondriasis. Contrary to GAD, in which excessive anxiety and worry encompass a number of events or activities, health is the central theme of worry in hypochondriasis. A recent study demonstrated that two processes involved in GAD are also involved in health anxiety. In light of these findings, adapting the treatment for GAD to hypochondriasis was warranted. In the present study, 6 hypochondriacal patients participated in a multiple baseline single-case design. Patients were assessed by means of a structured interview before and after treatment. Treatment targeted the following components: (a) awareness of worry, (b) intolerance of uncertainty toward health, (c) faulty beliefs regarding worry and anxiety, (d) cognitive avoidance and relapse prevention of reassurance or avoidance behaviors, (e) poor orientation to physical symptoms and problems, and (f) relapse prevention. Following treatment, none of the 6 patients met criteria for hypochondriasis. Results confirmed that a treatment targeting excessive worry is effective for hypochondriasis. All participants reached a high end-state functioning at the 1-year follow-up. The clinical implications of these results are discussed.

SOME YEARS AGO, hypochondriasis was considered to be a disorder particularly resistant to intervention (Nemiah, 1985) and the prognosis was considered to be relatively poor (Fallon, Klein, & Liebowitz, 1993). Prevalence is difficult to assess because nosological borders are loosely defined and also because the difference between the clinical and the nonclinical level is not clearly defined (Barsky, Wyshak, Klerman, & Latham, 1990). A multisite international study estimates that hypochondriasis is found in 0.8% to 1.5% of the general population (Gureje, Ustün, & Simon, 1997). Prevalence is most likely higher in the context of health services than in the general population since these persons are already seeking medical treatment (Noyes, Happel, & Yagla, 1999).

Individuals suffering from hypochondriasis desperately seek to identify the physical causes of their symptoms and will often consult several medical professionals. The cost for society is significant. Hypochondriasis is defined as the preoccupation with or the belief that one has a serious disease (American Psychiatric Association, 1994). The fear of illness (health anxiety) is an important element and may constitute a basic aspect of hypochondriasis; in this sense, it is interesting to highlight the overlap between this somatoform disorder and the anxiety disorder. Hypochondriasis shares some qualities with anxiety disorders that are characterized by health preoccupations, namely, generalized anxiety disorder (GAD; Barsky, 1996). Furthermore, as proposed by Salkovskis and Clark (1993), hypochondriasis and panic disorder

patients have an enduring tendency to misinterpret bodily sensations. Compulsive behaviors widely found in the obsessive-compulsive (OCD) population are also present in hypochondriasis (Barsky, 1992). Evidence suggests that categorizing hypochondriasis as a somatoform disorder is questionable. Some authors have proposed that hypochondriasis should be considered an anxiety disorder (Fallon et al., 1993; Noyes, 1999; Schmidt, 1994).

Recently, some authors have proposed that strategies used successfully in the treatment of other forms of anxiety may also be used for hypochondriasis or health anxiety (Bolduc, Freeston, Mainguy, Marchand, & Todorov, 1999). For example, Warwick and Salkovskis' (1990) conceptualization of hypochondriasis implies components usually used in the treatment of OCD. This conceptualization has been demonstrated to be effective in the treatment of this disorder (Clark et al., 1998; Warwick, Clark, Cobb, & Salkovskis, 1996). Hence, it can be proposed that these clinical aspects were useful in the treatment of hypochondriasis because the disorders share some of the same processes. Some studies have demonstrated that cognitive-behavioral treatment is a promising approach for the treatment of this disorder as both an individual and group intervention (e.g., Avia et al., 1996; Bouman & Visser, 1998; Clark et al., 1998; Furer, Walker, & Vincent, 1999; Stern & Fernandez, 1991; Warwick et al., 1996). Those cognitive-behavioral treatments target processes that are implicated in health anxiety, but the processes are also implicated in other conditions of anxiety: reassurance seeking, behavioral avoidance, cognitive avoidance, and faulty belief.

A recent study clarified different processes implicated in health anxiety (Langlois & Ladouceur, 2004). The processes assessed in that study were related to GAD, panic

disorder, OCD, and hypochondriasis. All processes were used as predictors of illness worry. Results demonstrated that four processes explained a significant and unique part of the variance of illness worry. In order of importance, those processes were (1) tendency to interpret symptoms as organic abnormality; (2) cognitive avoidance; (3) the somatosensory amplification of symptoms; and (4) intolerance to uncertainty. The present study raises some of the processes that must be taken into account in the treatment of hypochondriasis or health anxiety.

An effective treatment of hypochondriasis must take into account the particular characteristics of health anxiety. A recent analogue study compared three kinds of cognitive intrusions: illness intrusion, obsessional intrusion, and worry. The comparison of the intrusions showed that illness intrusions share characteristics of worry and obsessional intrusions, but also have their own characteristics (Langlois, Freeston, Ladouceur, & Gosselin, 2004). This kind of intrusion seems to be particularly ego-syntonic. In other words, the hypochondriasis patient may consider that it is normal to worry about illness and that it is justified to seek reassurance in a medical setting as soon as physical symptoms appear. This ego-syntonic evaluation results probably from faulty beliefs concerning health and illness. The impact of specific faulty beliefs on health anxiety has been tested in an analogue population (Pelletier, Gosselin, Langlois, & Ladouceur, 2002). In this study, two new measures were validated: the first measure targets faulty belief about illness worry (usefulness of worry illness and magical thinking in illness worry); the second measure targets general faulty beliefs concerning health (vulnerability, characteristics of good health, responsibility in illness, consequences of illness, magical thinking in illness). Results demonstrated that a group with a high tendency to worry about illness presented more general faulty beliefs concerning health compared to a group with a low tendency to worry about illness. A cognitive-behavioral treatment must take into account this new information. The cognitive restructuring of the faulty beliefs specific to health anxiety may improve the efficacy of cognitive-behavioral treatment.

It has been demonstrated that if we consider the percentage of verbal and image content, illness intrusion cannot be labeled as pure obsessional intrusion or pure worry (Langlois et al., 2004). The content of obsessional intrusion seems to take the form of images, and the content of worry tends to take a verbal form. Illness intrusions seem to take a middle ground and are as much verbal as imaginal (Langlois et al., 2004). Thus, treatment of illness intrusion should account for both visual and verbal intrusions. As proposed by Foa and Kozak (1986), successful processing of fearful stimuli is dependent upon physiological habituation and cognitive modification of associated danger-laden misconceptions. Considering that

cognitive exposure was included in cognitive-behavioral treatment for OCD (Freeston, Ladouceur, Gagnon, & Thibodeau, 1997) and GAD (Ladouceur et al., 2000), it appears that this treatment target may also be effective for illness intrusion in hypochondriasis.

Current findings indicate that the general structure of illness intrusions closely resembles that of worry. Considering these similarities, it would be interesting to adapt a treatment of GAD to hypochondriasis. A treatment was recently proposed by Ladouceur et al. (2000) and appears to be particularly effective for health-related worry (Langlois, Dugas, Léger, & Ladouceur, 1998). This treatment program presents the advantage of targeting worry based in reality or situations amenable to problem solving over targeting worry about situations that do not yet exist (e.g., developing cancer).

The aim of the present study is to test, with a multiple single-case design, the adaptation of a cognitive behavioral treatment for GAD, which has already demonstrated its efficacy in the treatment of excessive worry. This adaptation takes into account the recent findings in health anxiety but also includes the component used in previous effective treatment studies of hypochondriasis. The processes considered in the treatment are numerous. Intolerance to the uncertainty about health is targeted specifically and is presented at the start of the treatment. The cognitive restructuring of faulty beliefs about worry is similar to the method used in Ladouceur et al. (2000), but this adaptation also targets the specific faulty beliefs associated with health anxiety (Pelletier et al., 2002). Cognitive exposure is used to enhance the physiological habituation and the cognitive modification of associated illness intrusions. This adaptation also includes, as in the original treatment, the psychoeducation of problem solving. This aspect was considered in this adaptation because it was demonstrated by Clark et al. (1998) that behavioral stress management was effective for hypochondriasis. The rationale can be formulated as followed: If daily problems are resolved more rapidly via problem solving, there is a decreased chance that symptoms of anxiety will be interpreted as signs of illness. Meanwhile, hypochondriacal patients may observe that the symptoms that they usually interpret as signs of illness are in fact anxiety symptoms or reactions to stressful events.

Method

Participants

The participants were selected among participants of a previous study that targeted processes in health anxiety (Langlois & Ladouceur, 2004). Following the publication of articles describing our work in local newspapers, individuals were informed that our research group was working on illness worry and that clinical volunteers would be

welcome. The participants of the previous study presented clinical health anxiety. Presentation according to *DSM-IV* was heterogeneous and participants did not necessarily meet the criteria for hypochondriasis. For example, several participants presented with GAD with health-predominant worry or panic disorder with heart attack doubt or conviction. Given the exploratory nature of this study, we decided to concentrate on participants that present a primary diagnosis of hypochondriasis. From the 78 participants of the previous study, only 8 met the inclusion criteria of the present study. One participant did not accept for professional reasons, another was excluded from the study because of a change in medication. Finally, the remaining 6 participants met the following criteria: (a) a primary diagnosis of hypochondriasis; (b) no change in medication type or dose during the 12 weeks prior to treatment; (c) willingness to keep medication status stable during the treatment; (d) no evidence of suicidal intent; (e) if there was another anxiety or mood disorder, this disorder must be of lower severity; (f) no evidence of current substance abuse; and (g) no evidence of current or past schizophrenia, bipolar disorder, or organic mental disorder. A clinician assessed participants with the Anxiety Disorder Interview Schedule for *DSM-IV.* Interviews were tape-recorded and a second clinician confirmed the diagnosis by listening to the recordings. The participants' physicians were contacted to confirm that symptoms were not part of a diagnosed disease and that the reaction to the symptom disease was excessive.

Participant 1 was a 53-year-old married woman who had throat cancer 5 years ago. At the time of the study, specialists considered her to be in remission and without risk of relapse in the short term. However, she had annual follow-ups. She met clinical criteria for hypochondriasis with a severity rating of 7/8. The diagnosis in this case was difficult. It is true that this woman presented symptoms related to posttraumatic stress disorder (PTSD). However, she did not present avoidance behavior, but rather reassurance-seeking behaviors, and she did not present symptoms of increased arousal. The intrusions she experienced were more related to an eventual relapse and the presence of a new cancer than images of her past experience with throat cancer. This woman tended to repetitively palpate her throat daily and often asked her husband to check her throat. She tried to avoid situations that might have triggered thoughts about cancer. This was very difficult because she worked in a medical university. This participant perceived every abnormal symptom as a sign of immune weakness and, on the worst days, proof of the presence of a cancer.

Participant 2 was a 56-year-old married woman who interpreted every physical symptom as the sign of a severe illness. At intake, she met the hypochondriasis criteria with a severity rating of 7 and also met criteria for panic

disorder with agoraphobia (severity rating of 5) and GAD (severity rating of 4). Every symptom she experienced was interpreted as a sign of different types of cancers, depending on the body source. This patient also had a diagnosis of irritable bowel syndrome. Symptoms associated with the bowels were interpreted as a sign of cancer even though she had been correctly investigated. She took alprazolam as needed; however, the last consumption was stable 12 weeks before treatment.

Participant 3 was a 40-year-old single man who had begun to manifest health anxiety symptoms following a cerebral-vascular accident (CVA) 2 years ago. He catastrophically interpreted symptoms that could be associated with CVA, including headaches, cardiac palpitations, feelings of dizziness, hot flashes, numbness. Similar to Participant 1, this man was also presenting with PTSD-related symptoms (but did not meet *DSM-IV* criteria). He often used reassurance-seeking behaviors and suffered from increased arousal to symptoms like headaches, cardiac palpitations, and feelings of dizziness. Both clinicians considered that his health anxiety was better explained by hypochondriasis. He met criteria with a moderate severity (4/8). His medication (Warfarine sodique) was regularly reevaluated at the time of the study. Specialists consider this CVA to be exceptional as he did not present any risk factors and he was younger than usual at the time of his accident. However, this man receives equivocal messages. On the one hand, he is now considered by his insurance company to be among the population "at risk"; on the other hand, his physician is of the opinion that he could easily live a long life without any further CVAs.

Participant 4 was a 42-year-old single man who had been on medical leave for several years. The cause of this medical leave was, according the participant, mood disorder and several unexplained symptoms. At the time of treatment, the participant's income consisted of social security benefits. For the last 5 years, his mood had been stabilized with Sertraline and he also used a stable dose of Clonazepam. His diagnosis at intake was hypochondriasis (severity rating of 6) and GAD (severity rating of 4). He was particularly preoccupied with heart palpitations and tiredness. He was convinced that physicians may not have found the real cause of his symptoms and that he was in fact suffering from a severe illness.

Participant 5 was a 54-year-old widowed woman with a diagnosis of hypochondriasis with, at intake, a severity rating of 4. This participant was primarily preoccupied with pain and a burning sensation in her mouth. Despite several medical consultations, none of which identified an organic cause, she continued to believe that there was a real organic cause and that she was suffering from a severe disease. She also tended to catastrophically interpret any other bodily symptoms. This participant did not meet

GAD criteria at intake but was easily worried with several subjects. She recognized after treatment that she probably minimized her GAD symptoms at intake. On rare occasions, Participant 5 took benzodiazepines.

Participant 6 was a 25-year-old single woman who, at intake, met hypochondriasis criteria with a severity rating of 5. She had a diagnosed bladder disease, which was treated with medication. However, she often interpreted the secondary effects of the medication and the symptoms of the bladder disease itself as signs of bowel cancer. She also interpreted other body symptoms as signs of different types of cancers.

Treatment Outcome Measures

Treatment outcome was assessed with daily self-monitoring, self-reporting questionnaires, and standardized clinician ratings.

Daily Self-Monitoring

A self-monitoring booklet was used to evaluate two questions on a daily basis during baseline and treatment, as well as at the 6-month and the 1-year follow-up consultations. The questions targeted the following topics: (1) the time spent worrying about illness and (2) the intensity of the need for reassurance-seeking behaviors. Participants rated each question on a 100-point scale. For the first question (time spent worrying), 0 indicated a complete absence of worry and 100 represented their most worrisome days. The maximum (100) was predetermined before baseline.

Self-Report Questionnaires

Illness Worry Scale (IWS; Robbins & Kirmayer, 1996). This measure was designed to quantify the tendency (a) to worry that bodily sensations or feelings indicate serious diseases and (b) to feel vulnerable about becoming ill. The original version of the IWS consists of 9 yes/no questions derived from the Illness Behavior Questionnaire (Pilowsky, Spence, Cobb, & Katsikitis, 1984). This measure was employed in the present study because it appears to be uncontaminated by related constructs of body or self-focus and symptomatology (Robbins & Kirmayer, 1996). These aspects will be considered with other measures. This questionnaire has moderate internal consistency (α =. 70), a stability of .64 over a 12-month period, and is highly correlated (r = .82) with the Withely Index of hypochondriasis (Pilowsky, 1967). The internal consistency of the French version used in the current study is high (α = .83). To enhance variability in the present study, a Likert scale (0–5; *not at all corresponding* to *extremely corresponding*) was employed.

Symptom Interpretation Questionnaire (SIQ; Robbins & Kirmayer, 1991). The SIQ was designed to evaluate three kinds of attributions (psychological, somatic, and neutral) for

13 physical symptoms. Internal consistency (psychological α = .87, somatic α = .71, and neutral α = .81) and convergent validity are good for each scale. Confirmatory analysis demonstrates the three different constructs. We only used the somatic score in the present study. We used the French version created by the authors but the psychometric properties of that version were not available.

Overvalued Ideas Scale (OVIS; Neziroglu, McKay, Yaryura-Tobias, Stevens, & Todaro, 1997). The OVIS is a semistructured interview designed to measure overvalued ideation in OCD. Overvalued ideas are strongly held beliefs that fall along a continuum between normal and delusional thoughts. This measure was chosen to assess the impact of conviction on health anxiety. This measure assesses strength, bizarreness, belief accuracy, reasonableness, efficacy of compulsions, and other related variables. The English version of the OVIS has good internal consistency and convergent validity. However, the French version, created with a back-translation, has poorer internal consistency (α = .55).

Somatosensory Amplification Scale (SSAS; Barsky, Wyshak, & Klerman, 1990). The SSAS contains 10 items regarding unpleasant physical sensations that do not necessarily connote serious diseases. Participants are asked to rate the degree to which statements reflect them on an ordinal scale from 1 to 5. The English version of the SSAS has good test-retest reliability (74 days; r = .79) and internal consistency (α = .82). The French version, created with a back-translation for the present study, has moderate internal consistency (α = .72).

Intolerance to Uncertainty (IU; Freeston, Rhéaume, Letarte, Dugas, & Ladouceur, 1994). The IU is designed to assess emotional, cognitive, and behavioral reactions in uncertain situations. This measure contains 27 items that participants are required to rate on a 5-point Likert scale (*not at all corresponding* to *extremely corresponding*). This French measure has a very high internal consistency (α = .91), good criteria and construct validity, and adequate test-retest reliability (5 weeks).

Cognitive Avoidance Questionnaire (CAQ; Gosselin et al., 2002). The CAQ is designed to assess various cognitive avoidance strategies: (a) thought substitution, (b) transformation of images into verbal thoughts, (c) distraction, (d) avoidance of trigger, and (e) suppression of thoughts. The CAQ contains 25 items that participants are required to rate on a 5-point Likert scale (*not at all corresponding* to *extremely corresponding*). This French measure has very good internal consistency (α = .96) and construct and convergent validity.

The Beck Depression Inventory (BDI; Beck, Steer, & Garbin 1988). The BDI was employed to assess the implication of depressive symptoms in health anxiety. This measure consists of 21 items covering the main depressive symptoms. The French translation has excellent psychometric properties (Bourque & Beaudette, 1982).

The Health Perception, Belief and Behavior Questionnaire (Langlois, Freeston, Vézina, & Ladouceur, 1997). This French measure was designed to assess health-related perceptions, behaviors, and attitudes. For the present study, only descriptive information was considered: medical consultation, hospitalization, medication, etc.

Standardized Clinician Rating

Anxiety Disorders Interview Schedule for DSM-IV (ADIS-IV; DiNardo, Brown, Esler, & Barlow, 1995). The ADIS-IV is a structured interview designed to assess all anxiety disorders and screen for mood disorders, somatoform disorders, psychoactive substance use disorder, psychotic disorders, and medical problems. The interview yields information on the presence of Axis I disorders with severity ratings on a 9-point Likert scale (0–8). The ADIS-IV was used to diagnose patients and to evaluate treatment outcome.

Experimental Design

A multiple-baseline design across individuals was used. This design provides control over maturational effects and life events by showing that participants improve when treatment is introduced (Hersen & Barlow, 1976; Ladouceur & Bégin, 1986).

Therapist

The therapist (the first author) was experienced in cognitive-behavioral treatment of anxiety disorders and was supervised by a senior clinical psychologist (the second author). The therapist had the opportunity to do an internship in a health center that specialized in somatoform disorders. He had done a pilot study that consisted of the application of the worry treatment with health anxiety patients. He applied this integral treatment for a GAD treatment group study. He also had significant experience in the assessment of health anxiety.

Treatment

One-hour therapy sessions were conducted weekly and participants were told the treatment would last 12 to 14 sessions, depending on the evolution and the needs of the participants. Participants 3, 5, and 6 had 12 sessions. Participants 1, 2, and 4 received 14 sessions in order to cover all treatment components, mainly the use of cognitive exposure when confronted with worry. They were also more inclined to use reassurance-seeking or avoidance behaviors. The treatment consisted of the goals and components delineated below.

Awareness Training

The chain of events created by the worry phenomenon was presented to the participant. Different daily triggers can provoke "what if . . ." questions. For the participants in this study, triggers were often a physical sensation

but also a health report or a discussion. These questions act as a trigger of worry, which provokes the anxiety symptoms and a number of different somatic reactions. With time, demoralization and exhaustion appear. Patients were also informed that anxiety symptoms or demoralization symptoms could be triggers for new illness worry or confirmation of disease. The therapist presented two kinds of worry: worry about *actual* problems and worry about *eventual* problems (see Ladouceur et al., 2000). Gradually, patients became aware that their worry was triggered by symptoms real in themselves and that the content of these worries consisted of eventual catastrophic consequences.

Intolerance to Uncertainty in Health

Participants must understand that uncertainty is an integral part of life, particularly with respect to health. Patients were informed that compared to others, they have low tolerance of uncertainty. The therapist attempted to help participants understand that it is more realistic to learn to tolerate uncertainty than to try to control and attain certainty in health. This was presented to the participant by explaining that medical research is always in development, that certain illnesses have not yet been discovered, that certain tests do not yet exist or are not infallible. Perfect control of health is therefore impossible. Patients were asked to use a model of tolerance and try to imagine their reaction and interpretation when faced with similar physical symptoms. Response prevention was the best way to demonstrate that an unpleasant sensation can sometimes be tolerated and that it does not warrant a medical consultation or other kind of reassurance. Participants tolerated the sensation without reassurance and finally accepted that it disappeared without complications.

Faulty Beliefs Concerning Worry and Health

Participants were informed of the impact of two kinds of faulty beliefs. First, it was demonstrated to participants that faulty beliefs about worry may maintain the tendency to worry about illness. It was suggested that participants must confront their faulty beliefs (i.e., "Worry can prevent illness"; "Worry will make me react more rapidly to symptoms"; "If I worry about illness I won't be surprised if it comes true"). Secondly, participants were invited to re-evaluate their general view of illness or health. Using cognitive restructuring, participants confronted different faulty beliefs: perception of vulnerability, the consequence associated with illness, personal control of illness, definition of good health, and magical thinking about illness. A list of faulty beliefs related to health anxiety was presented to the participants, who were then invited to expose themselves to each belief and to answer the following four questions:

What proof do I have to confirm my belief?

Is there any valid proof confirming that my belief is wrong?

Is there any advantage to believing it?

What are the negative consequences of holding this belief?

Orientation to Physical Symptoms and Problem Solving

Participants were informed that they may have negative emotional reactions following physical symptoms. The physical symptoms are considered to be an actual problem, but the emphasis is on the ineffective and premature reaction to these physical symptoms. The participants learned to modify their perception of threat into a challenge; to accept that their body can not always be in perfect shape; and that a symptom is a symptom, not a sign of illness. Participants were also trained to recognize and

solve their other daily problems. This has two principal advantages: (a) effective problem-solving attitudes may decrease the severity of anxiety symptoms; and (b) participants come to realize that daily problems influence the onset of several physical symptoms.

Cognitive Avoidance, Neutralization, and Behavioral Avoidance

Avoidance and neutralization of intrusions is a process that maintains the tendency to worry. The more an illness intrusion is avoided or escaped, the more and the stronger this intrusion will reappear. The exposure to threatening images was presented to participants as the new skill to be used when worry concerns an eventual problem (illness worry). With repetitive exposure to the illness intrusion, participants understood the phenomenon of habituation to anxiety. Asked to describe in more concrete terms the images and the story of their illness intrusion, participants recorded their description and listened to it repetitively with proscription of all voluntary activity used to neutralize the images. Participants were asked to expose themselves to their recorded scenario 30 minutes per day for 2 weeks, in addition to exposing themselves to different triggers associated with illness (i.e., hospital, illness reports, and discussions about illness). Because in vivo and cognitive exposure may increase the likelihood of overcoming a fear, participants were provided with a list of illness-related situations that they avoid. They chose one or two behavioral exposure objectives per week. The participants were instructed to continue exposing themselves to situations until their levels of anxiety decreased.

Relapse Prevention

The last two treatment sessions were devoted to relapse prevention. The patients viewed a summary of the strategies used for illness worry. The distinction between lapse and relapse was presented, and patients were instructed to use the same strategies to cope with relapse or "slips." If relapse was real, they were instructed to use the problem-solving skills. If the participant was experiencing fear of an eventual relapse, he or she was instructed to use the cognitive exposure technique.

Follow-Up Assessment

Follow-up assessments were held at posttreatment, 6 months, and 1 year after treatment. Before each follow-up session, participants were asked to complete their daily self-monitoring booklet (the same two questions) for 1 week and to complete all questionnaires. They were assessed by a clinician using the ADIS-IV at posttreatment, 6-month, and 1-year
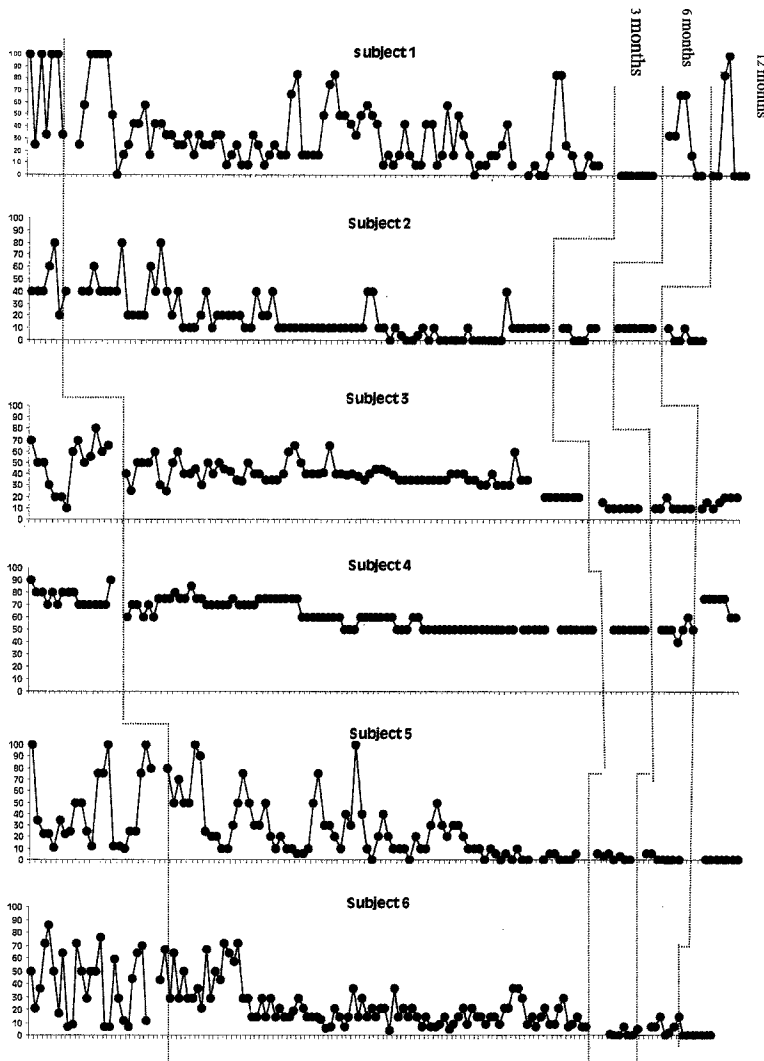

Figure 1. Daily self-monitoring of illness worry.

follow-up. The follow-up assessments were not completely blinded. Sometimes the clinician knew that the participant had completed a GAD treatment.

Treatment Integrity

All sessions were recorded and an evaluator (a graduate student) checked 25% of sessions by using a treatment intervention checklist made by our team. Treatment sessions were divided into four quartiles and one session was randomly chosen in each quartile to ensure that treatment integrity considered all phases of treatment. The evaluator calculated the proportion of interventions that were indicated in the protocol on the overall session time. Integrity for the 6 combined participants reached 96.9%. Most of the time, the interventions that were not indicated in the protocol concerned clinical discussion on another diagnosis (e.g., insomnia, panic, loss of interest).

Results

Treatment Outcome

Treatment outcome and maintenance were assessed with data obtained from daily self-monitoring, self-report questionnaires, and standardized clinician ratings.

Daily self-monitoring. Figure 1 presents the daily self-monitoring of illness worry. If we consider a decrease of 50% in the time spent worrying, only Participant 4 did not improve at any time during the study. For the five other participants, gains were maintained at the 6- and 12-month follow-up. These observations are consistent with the mean percentage for the baseline, pretest, posttest, and the 6- and 12-month follow-ups.

Figure 2 presents the daily self-monitoring of the need for reassurance. The need for reassurance decreased for all participants during the treatment and gains were maintained at the 6-month and 1-year follow-ups. If we consider a decrease of 50% of the need for reassurance, only Participant 3 did not improve at posttest. However, he presented improvement at the 6-month and 1-year follow-ups.

Standardized clinician ratings. Independent clinicians experienced with the ADIS-IV conducted the posttest, the 6-month, and 1-year follow-up evaluations. The presence of Axis I disorders with a severity rating was noted. At posttest, Participants 1, 3, 4, 5, and 6 did not meet criteria for any disorders. Participant 2 still met criteria for panic disorder with agoraphobia and blood phobia but not for hypochondriasis. At the 6-month follow up, there was no change for Participants 2, 3, 5, and 6. Participant 1 presented a major depressive episode probably created by
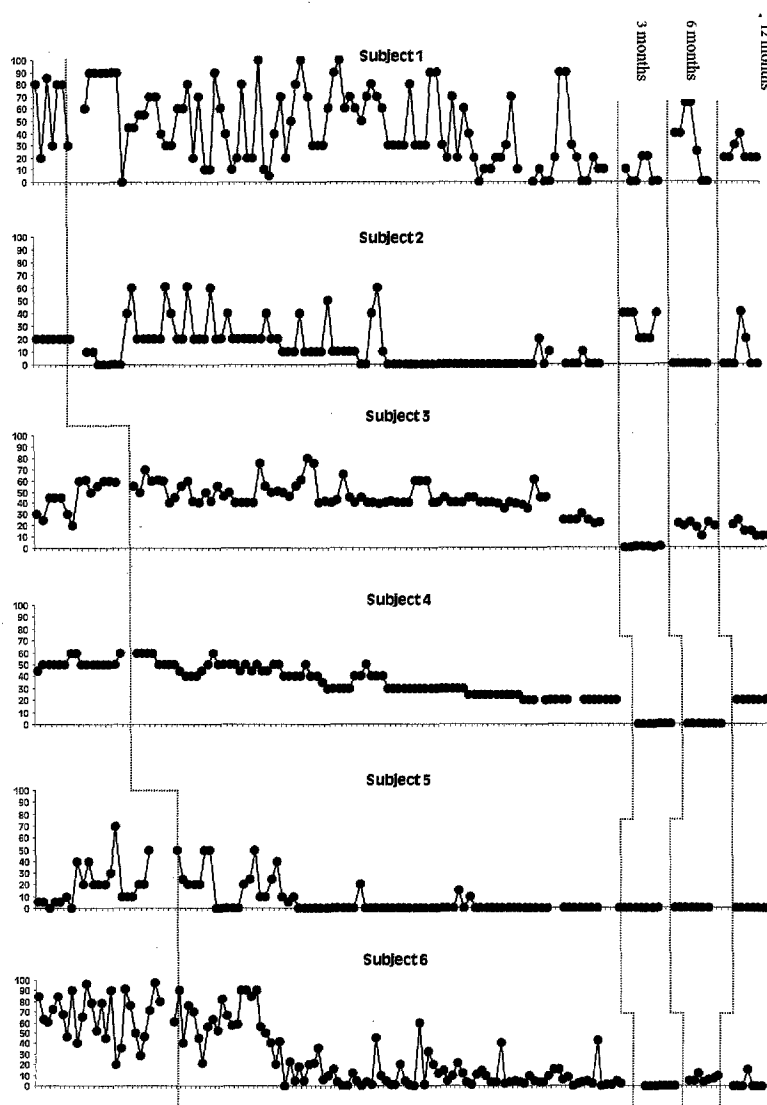
Figure 2. Daily self-monitoring of the need for reassurance.

his health anxiety. She did not fear illness for 6 months and thus did not meet criteria for hypochondriasis. However, the independent rater considered her residual hypochondriac symptoms to be severe. The symptom severity was not detectable in the self-report questionnaires because they were filled out 1 week before the relapse episode and before the standardized clinician rating. This episode appeared at the same date of the chemotherapy treatment some years before. In light of this, results for Participant 1 must be interpreted with caution at the 6-month follow-up. Changes for Participant 4 were related on the GAD diagnosis. This participant met the criteria for GAD at pretest and not at posttest. However, this difference was not important because there were severe residual symptoms for GAD at posttest. At the 1-year

Table 1

Treatment Outcome: Questionnaire Cut Score and Scores Obtained by Participants
at Pretest, Posttest, and Follow-Up

Measure	Cut score	Minimum Reliable Change Index	Pretest	Posttest	6-Month Follow-up	1-Year Follow-up
Participant 1						
IWS	21, 5	8, 6	26	16[a,b]	17[a,b]	14[a,b]
SIQ physical	2, 8	5, 2	9	1[a,b]	5	4
OVIS (Conviction)	26, 1	7, 7	54	45[b]	67	42[b]
SSAS	27, 5	8, 1	30	30	31	24[a]
IU	63, 2	23, 9	85	69	82	66
CAQ	63, 2	28, 8	125	92[b]	75[b]	66[b]
Participant 2						
IWS	21, 5	8, 6	45	29[b]	16[a,b]	17[a,b]
SIQ physical	2, 8	5, 2	10	2[a,b]	2[a,b]	1[a,b]
OVIS (Conviction)	24, 4	8, 4	48	33[b]	28[b]	26[b]
SSAS	27, 5	8, 1	44	41	35[b]	33[b]
IU	63, 2	23, 9	95	81	76	69
CAQ	63, 2	28, 8	114	43[a,b]	45[a,b]	37[a,b]
Participant 3						
IWS	21, 5	8, 6	31	19[a,b]	18[a,b]	20[a,b]
SIQ physical	2, 8	5, 2	4	3	5	5
OVIS (Conviction)	24, 4	8, 4	60	55	52	58
SSAS	27, 5	8, 1	23[a]	16[a]	20[a]	24[a]
IU	63, 2	23, 9	70	48[a]	46[a,b]	50[a]
CAQ	63, 2	28, 8	83	51[a,b]	45[a,b]	47[a,b]
Participant 4						
IWS	21, 5	8, 6	32	19[a,b]	19[a,b]	20[a,b]
SIQ physical	2, 8	5, 2	11	1[a,b]	0[a,b]	4[b]
OVIS (Conviction)	24, 4	8, 4	40	39	48	48
SSAS	27, 5	8, 1	30	26[a]	26[a]	23[a]
IU	63, 2	23, 9	76	50[a,b]	49[a,b]	49[a,b]
CAQ	63, 2	28, 8	69	36[a,b]	38[a,b]	39[a,b]
Participant 5						
IWS	21, 5	8, 6	29	17[a,b]	13[a,b]	11[a,b]
SIQ physical	2, 8	5, 2	10	8	3[b]	1[a,b]
OVIS (Conviction)	24, 4	8, 4	44	17[a,b]	20[a,b]	22[a,b]
SSAS	27, 5	8, 1	26[a]	16[a,b]	21[a]	14[a,b]
IU	63, 2	23, 9	76	57[a]	57[a]	40[a,b]
CAQ	63, 2	28, 8	58[a]	34[a]	25[a,b]	26[a,b]
Participant 6						
IWS	21, 5	8, 6	39	13[a,b]	12[a,b]	11[a,b]
SIQ physical	2, 8	5, 2	8	1[a,b]	2[a,b]	2[a,b]
OVIS (Conviction)	24, 4	8, 4	43	18[a,b]	22[a,b]	26[b]
SSAS	27, 5	8, 1	32	21[a,b]	28	29
IU	63, 2	23, 9	50[a]	30[a]	31[a]	31[a]
CAQ	63, 2	28, 8	81	35[a,b]	35[a,b]	63[a]

Note. IWS = Illness Worry Scale; SIQ = Symptom Interpretation Questionnaire; OVIS = Overvalued Ideas Scale; SSAS = Somatosensory Amplification Scale; IU = Intolerance to Uncertainty; CAQ = Cognitive Avoidance Questionnaire.
[a] Score is in nonclinical range.
[b] Difference in score between this time and pretest reaches minimum Reliable Change Index for the measure.

follow-up, when compared to the 6-month follow-up, there was no change for participants except for Participant 1. The condition of Participant 1 had improved even though she presented an adaptation disorder at this time.

Family and professional conflicts were the causes of the disorder.

Self-report questionnaires. For the treatment outcome self-report data, two indications of clinically significant changes were calculated. First, cutoff points were used to determine if scores were in the clinical range at pretest, posttest, and follow-up. As proposed by Jacobson and Truax (1991), clinical change should occur when the level of functioning subsequent to therapy places the client closer to the mean of the functional population than it does to the mean of the dysfunctional population. Normative data for the clinical distribution comes from a preceding study in our laboratory. In this study, 78 participants were assessed and met the criteria for clinical health anxiety (Langlois & Ladouceur, 2004). Normative data for the nonclinical distribution came from results of our other recent analogue studies using the same measures.

The second method used to assess the clinically significant changes was to question how much change had occurred during the treatment. Thus, a severe patient score may reflect significant change but may still be in the clinical range. Jacobson and Truax (1991) have proposed a Reliable Change Index (RCI). When RC is larger than 1.96, it may be concluded that the change is real and cannot be explained by the error relative to the measure.

Symptom Measures

Table 1 presents the results on all self-report questionnaires for the 6 participants. All scores are in the clinical range for the symptom measure (IWS) at pretest. At posttest, all participants reached the RCI and only Participant 2 was still in the clinical range. At the 6- month and 1-year follow-ups, all participants presented scores in the nonclinical range and met the RCI. We decided not to present results on BDI and PSWQ for two reasons. First, only Participants 1 and 4 were in the clinical range, and their scores were very close to the nonclinical range. Second, no participants presented change in score at posttest and follow-up that met the minimum RCI.

Process Measures

We consider a participant considerably improved at the process level if he presented a reliable change and a nonclinical score for two process measures. Participants 2, 4, and 5 met this criterion at any time during treatment. Participant 1 did not meet this criterion at any time during treatment. Participant 3 did not meet this criterion at posttest or at the 1-year follow-up. Participant 6 met the criterion at posttest and the 6-month follow-up but did not maintain this gain at the 1-year follow-up.

End-State Functioning

To determine end-state functioning at posttest and at 6- and 12-month follow-up, a composite score was derived from the principal measures. Criteria for the different assessment modalities were as follows: (a) a decrease of at least 50% in daily monitoring scores of time spent worrying about illness; (b) a decrease of at least 50% in the intensity of the need for reassurance; (c) an absence of hypocondriasis as measured by the ADIS-IV; (d) a reliable change for the symptom measure (IWS); (e) a score in the nonclinical range for the symptom measure (IWS); (f) at least two process measures that met RCI and a nonclinical score. The number of modalities on which the specific criterion was met determined the level of end-state functioning: low (0–2 modality), moderate (3–4), and high (5–6).

When the criteria were considered, results showed that only Participant 3 did not present a high end-state functioning at the end of treatment. At the 6-month follow-up, only Participant 1 did not maintain gains and Participant 3 presented an improvement. At the 1-year follow-up, all participants presented a high end-state functioning.

Discussion

The primary aim of this study was to test the effectiveness of a cognitive-behavioral treatment of excessive worry with respect to hypochondriasis. The treatment was an adaptation of a GAD treatment program that has already been demonstrated as effective (Ladouceur et al., 2000). The overall results suggest that a treatment of excessive health worry is a promising approach: the results show that all participants reached a high end-state functioning at the 1-year follow-up. Considering that the treatment outcome was assessed using different conservative modalities (self-monitoring, standardized self-report questionnaires, and structured interview), it can be concluded that all participants benefited from this treatment.

Because of the preliminary nature of this study, we offered treatment to participants who presented no other diagnosis or, when comorbidity was present, hypochondriasis was clearly the main interfering diagnosis. Hypo-

chondriasis is often comorbid with other diagnoses (Barsky et al., 1992; Kenyon, 1964; Noyes et al., 1994); thus, it is difficult to generalize results to all manifestations of health anxiety. It would be interesting to empirically test this aspect in a larger clinical trial that better represents the different manifestation of hypochondriasis or health anxiety. In the present study, only Participants 2 and 4 were in this condition, and the effect of the treatment seemed to be specific considering that they presented the same comorbid diagnosis at posttest and at the 1-year follow-up. It remains to be seen if, in a larger clinical trial, this observation would remain or if the treatment of illness worry would have an impact on other diagnoses, as was seen in Ladouceur et al. (2000).

It is interesting to observe the clinical change on the different processes measured. First, cognitive avoidance seems to be the process that is the most influenced by the treatment. Five participants presented a reliable change on this measure at posttest and at the 1-year follow-up. Six participants presented a reliable change at the 6-month follow-up. Another recent study demonstrated that cognitive avoidance was a good predictor of illness worry (Langlois & Ladouceur, 2004). In the present study, treatment targeted this process by using cognitive exposure. We proposed in the introduction that a treatment of illness intrusion should account for both visual and verbal content of the intrusions. Considering the clinical reliable changes for the CAQ, it may suggest that cognitive exposure effectively enhances the emotional processing of the illness worry content. Interestingly, cognitive exposure may have had an unexpected effect on Participants 1 and 3 in that their illness worries may contain a traumatic aspect (Participant 1 had a past throat cancer and Participant 3 had a past ACV). Cognitive exposure may have an effect on the past trauma aspect of their illness intrusions. Therefore, it may have targeted both the emotional processing of the past trauma and the emotional processing of the fear of a relapse or the fear of new illness. This suggests that a worry treatment may be effective for individuals who suffered from a disease and reacted to it by excessive worry. These two participants openly proposed that this treatment should be offered as a posttreatment medical follow-up intervention.

The results also show that four participants presented a reliable change on the physical scale of the interpretation questionnaire at posttest and the 1-year follow-up. Physical misinterpretation is included in the definition of hypochondriasis (APA, 1994). Warwick and Salkovskis (1990) proposed a model of health anxiety where catastrophic interpretation of physical symptoms may be targeted by cognitive restructuring. In the present treatment, catastrophic interpretation of the symptom was not directly targeted with cognitive restructuring. It was indirectly targeted in two ways: tolerance to uncertainty and

problem orientation. For example, participants were invited to interpret the symptom as a tolerant person would do. They were invited to experience that an unpleasant sensation can sometimes be tolerated and that it does not warrant a medical consultation or other kind of reassurance. Symptom interpretation was also indirectly targeted by the critic of the ineffective and premature reaction to that symptom, the orientation to symptoms. The participants learned to transform their threat perception into challenge perception. At the same time they learned to accept that their body can't always be in perfect shape and that sometimes it is normal to have unexplained bodily symptoms.

The results show that the SSAS presented a reliable change for only two participants. The Somatosensory Amplification includes bodily hypervigilance, the predisposition to focus on certain weak and infrequent bodily sensations, and a tendency to appraise them as pathological and symptomatic of disease, rather than normalizing them (Barsky, Wyshak, & Klerman, 1990). Because the concept is general rather than specific, direct cognitive intervention was difficult in this context. This observation seems coherent with another study that demonstrated that amplification score does not change in time. This is the case even though hypochondriacal symptoms decrease as a function of time (Barsky, Fama, Bailey, & Ahern, 1998). These results may support the idea of the traitlike character of amplification and raise the possibility that additional processes must be present for the occurrence and/or maintenance of health anxiety. However, it is still difficult to demonstrate that the hypochondriacal threshold for physical discomfort is explained at either a neuro-biological level or a cognitive perceptual level. Future innovative protocol should continue targeting this interesting but complex aspect.

Until recently, effective treatment for hypochondriasis has been lacking and the prognosis considered poor (Fallon et al., 1996). Patients find their care to be as ineffective and unsatisfactory as it is extensive (Barsky, 1996). This can partially be explained by the fact that they fail to spontaneously consider the psychological component of their physical symptoms. The conviction is probably a factor that lowers our chances of keeping these patients in a psychological treatment. The present study demonstrated that a treatment targeting excessive worry about illness had an impact on the conviction of four participants. However, it is possible that the patients participating in this study were probably not very convinced of the organic explanation of their symptoms. The doubt was certainly present but the persuasion, if present, was not strong as can be observed with other cases in a medical setting. The clinical cut score considered in this study comes from a sample of health anxiety patients who also participated on a voluntary basis. The clinical mean on the

OVIS may be higher in a sample of patients who still hope to find the organic cause of their physical symptoms and who have never considered consulting in mental health. Here, clinicians are confronted with the fact that treatment studies always have difficulty in reaching the real representation of the diverse cases of hypochondriasis. Conviction has been indirectly targeted by the restructuring of faulty beliefs about worry and the restructuring of general faulty beliefs about health. The usual cognitive restructuring technique was presented to participants and they were invited to confront all their personal faulty beliefs. It would have been interesting to have a measure that assessed this direct impact on beliefs, but no validated measure existed at that time. The next clinical controlled trial should address this limit. Results concerning conviction must be interpreted with caution because of the lower internal consistency of the French version of OVIS. Otherwise, the present study demonstrated that a treatment targeting excessive worry about illness seems to have had an impact on the conviction of four participants.

Another limit of the study concerns the self-monitoring of illness worry and need for reassurance. The monitoring of a specific worry is more difficult than the monitoring of all worry themes in a day. In other GAD studies that used similar monitoring, it seems easier to establish a clear baseline before the introduction of the intervention. In this study, the tendency to worry about illness and need reassurance is unstable and varies according to bodily fluctuations. Participants were not necessarily disturbed by symptoms every day. This was particularly the case for Participants 1, 5, and 6. However, in general, monitoring presented a decrease at the very end of treatment and at follow-up. It is possible that it took more time for participants to develop the skill in changing their first negative reaction to daily symptoms. Finally, another limit concerning the follow-up assessments must be considered. Although the evaluator was not related to the present study, keeping him completely blinded was not fully achieved. The evaluator knew about this treatment study because he was a member of the department of psychology.

The purpose of this treatment adaptation was to approach hypochondriasis as illness worry. Results confirmed that a treatment targeting excessive worry is a promising approach for hypochondriasis. All participants reached a high end-state functioning at the 1-year follow up. It seems that our comprehension of hypochondriasis is evolving and that we have more effective clinical strategies. It will be very important to confirm those preliminary results in a controlled clinical trial. We discussed the different strategies that were used to target specific processes. Actually, we cannot clearly assure that the strategies used were responsible for the clinical change on the related process. In the next years, it will be interesting to test the unique effectiveness of each component. The result of this study

paired with others (Avia et al., 1996; Bouman & Visser, 1998; Clark et al., 1998; Furer et al., 1999; Stern & Fernandez, 1991; Warwick et al., 1996) invalidates the idea that hypochondriasis is still refractory to treatment. There is still much to discover and understand, but a new challenge in hypochondriasis may be more at the level of screening in medical settings and psychoeducation of both health professionals and hypochondriacal patients. Clinical suggestions have already been proposed for the medical management of hypochondriasis (Barsky, 1996; Fallon et al., 1993; Salkovslis, 1989); the next challenge may be a question of information diffusion.

References

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.

Avia, M. D., Ruiz, A., Eugenia Olivares, M., Crespo, M., Guisado, A. B., Sanchez, A., & Varela, A. (1996). The meaning of psychological symptoms: Effectiveness of a group intervention with hypochondriasis patients. *Behavior Research and Therapy, 34,* 23–31.

Barsky, A. J. (1992). Hypochondriasis and obsessive-compulsive disorder. *Psychiatric Clinics of North America, 15,* 791–801.

Barsky, A. J. (1996). Hypochondriasis, medical management and psychiatric treatment. *Psychosomatics, 37,* 48–56.

Barsky, A. J., Fama, J. M., Bailey, E. D., & Ahern, D. K. (1998). A prospective 4 to 5 year study of DSM-III-R hypochondriasis. *Archive of General Psychiatry, 55,* 737–744.

Barsky, A. J., Wyshak, G., & Klerman, G. L. (1990). The somatosensory amplification scale and its relationship to hypochondriasis. *Journal of Psychiatric Research, 24,* 323–334.

Barsky, A. J., Wyshak, G., & Klerman, G. L. (1992). Psychiatric comorbidity in DSM-III-R hypochondriasis. *Archive of General Psychiatry, 49,* 101–108.

Barsky, A. J., Wyshak, G., Klerman, G. L., & Latham, K. S. (1990). The prevalence of hypochondriasis in medical outpatients. *Social Psychiatry and Psychiatric Epidemiology, 25,* 89–94.

Beck, A. T., Steer, R. A., & Garbin, M. G. (1988). Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review, 8,* 77–100

Bolduc, D., Freeston, M. H., Mainguy, N., Marchand, A., & Todorov, C. (1999, November). *Treating health anxiety and hypochondriasis: A pilot study.* Communication presented at annual convention of the Association for Advancement of Behavior Therapy, New York.

Bouman, T. K., & Visser, S. (1998). Cognitive and behavioral treatment of hypochondriasis. *Psychotherapy and Psychosomatics, 67,* 214–221.

Clark, D. M., Salkovskis, P. M., Hackmann, A., Wells, A., Fennell, M., Ludgate, S., Ahmad, S., Richards, H. C., & Gelder, M. (1998). Two psychological treatments for hypochondriasis: A randomised controlled trial. *British Journal of Psychiatry, 173,* 218–225.

DiNardo, P. A., Brown, T. A., Esler, J. L., & Barlow, D. H. (1995, November). *The Anxiety Disorders Interview Schedule for DSM-IV: Lifetime version: Description and initial evidence of diagnostic reliability.* Presented at the annual meeting of the Association for Advancement of Behavior Therapy, Washington, DC.

Fallon, B. A., Klein, B. W., & Liebowitz, M. R. (1993). Hypchondriasis: Treatment strategies. *Psychiatric Annals, 23,* 374–381.

Fallon, B. A., Schneier, F. R., Marshall, R., Campeas, R. & Vermes, D., Goetz, D., & Liebowitz, M. R. (1996). The pharmacotherapy of hypochondriasis. *Psychopharmacology Bulletin, 32,* 607–611.

Foa, E. B., & Kozak, M. J. (1986). Emotion processing of fear: Exposure to corrective information. *Psychological Bulletin, 99,* 20–35.

Freeston, M. H., Ladouceur, R., Gagnon, F., & Thibodeau, N. (1997). Cognitive-behavioral treatment of obsessive thought: A controlled study. *Journal of Consulting and Clinical Psychology, 65,* 405–413.

Freeston, M. H., Rhéaume, J., Letarte, H., Dugas, M. J., & Ladouceur, R. (1994). Why do people worry? *Personnality and Individual Differences, 17,* 791–802.

Furer, P., Walker, J. R., & Vincent, N. (1999, November). *Cognitive behavioral group treatment for hypochondriasis.* Communication presented at annual convention of the Association for Advancement of Behavior Therapy, New York.

Gosselin, P., Langlois, F., Freeston, M. H., Ladouceur, R, Dugas, M. J., & Pelletier, O. (2002). Le Questionnaire d'Évitement Cognitif (QEC): Développement et validation auprès d'un échantillon d'adultes et d'adolescents. *Journal de Thérapie Comportementale et Cognitive, 12,* 24–37.

Gureje, O., Ustn, B., & Simon, G. E. (1997). The syndrome of hypochondriasis: A cross-national study in primary care. *Psychological Medicine, 27,* 1001–1010.

Hersen, K., & Barlow, D. H. (1976). *Single case experimental designs: Strategies for studying behavior change.* New York: Pergamon.

Jacobson, N. S., & Truax, P. (1991). Clinical significance: a statistical approach to defining meaningful change in psychotherapy research. *Journal of Counsulting and Clinical Psychology, 59,* 12–19.

Kenyon, F. E. (1964). Hypochondriasis: A clinical study. *British Journal of Psychiatry, 110,* 478–488.

Ladouceur, R., & Bégin, G. (1986). *Protocoles de recherche en science appliquées et fondamentales.* St-Hyacinthe, Canada: Edition Edisem.

Ladouceur, R., Dugas, M. J., Freeston, M. H., Léger, E., Provencher, M. D., Gagnon, F., Thibodeau, N., & Boisvert, J.-M. (2000). Efficacy of a cognitive-behavioral treatment for Generalized Anxiety Disorder: Evaluation in a controlled clinical trial. *Journal of Consulting and Clinical Psychology, 6,* 957–964.

Langlois, F., Dugas, M. J., Léger, E. & Ladouceur, R. (1998, November). *Investigating the impact of health-related worry in the treatment of GAD: A pilot study.* Poster presented at the annual convention of the Association for Advancement of Behavior Therapy, Washington, DC.

Langlois, F., Freeston, M. H., Ladouceur, R., & Gosselin, P. (2004). Characteristics of illness intrusions in nonclinical sample. *Behavior Research and Therapy, 42,* 683–696.

Langlois, F., Freeston, M. H., Vézina, D., & Ladouceur, R. (1997, September). *Predictors of health-related behaviors.* Poster presented at the annual convention of the European Association of Cognitive Behavioral Therapy, Venice, Italy.

Langlois, F., & Ladouceur, R. (2004). *Predictors of illness intrusion in a clinical population.* Manuscript submitted for publication.

Nemiah, J. C. (1985). Hypochondriasis. In H. I. Kaplan & B. J. Sadock (Eds.). *Comprehensive texbook of psychiatry.* Baltimore: Lippincott Williams & Wilkins.

Neziroglu, F., McKay, D., Yaryura-Tobias, J. A., Steven, S. K., & Todaro, J. (1997). *The Overvalued Ideas Scale: Development, reliability, and validity in obsessive-compulsive disorder.* Paper presented at the Congrès Européen de l'association pour les therapie behaviorale et congnitive, Venise, Italy.

Noyes, R. (1999). The relationship of hypochondriasis to anxiety disorders. *General Hospital Psychiatry, 21,* 8–17.

Noyes, R., Happel, R. L., & Yagla, S. J. (1999). Correlate of hypochondriasis in a nonclinical population. *Psychosomatics, 40,* 461–469.

Noyes, R., Kathol, R. G., Fisher, M. M., Phillips, B. M., Suelzer, M. T., & Woodman, C. L. (1994). Psychiatric comorbidity among patients with hypochondriasis. *General Hospital Psychiatry, 16,* 78–87.

Pelletier, O., Gosselin, P., Langlois, F., & Ladouceur, R. (2002). Étude des propriétés psychométriques de deux nouveaux instruments évaluant les croyances présentes dans l'hypocondrie auprès d'une population non clinique. *L'Encéphale, 28,* 298–309.

Pilowsky, I. (1967). Dimensions of hypochondriasis. *British Journal of Psychiatry, 113,* 89–93.

Pilowsky, I., Spence, N., Cobb, J., & Katsikitis, M. (1984). The Illness Behavior Questionnaire as an aid to clinical assessment. *General Hospital Psychiatry, 6,* 123–130

Robbins, J. M., & Kirmayer, L. J. (1991). Attributions of common somatic symptoms. *Psychological Medicine, 21,* 1029–1045.

Robbins, J. M., & Kirmayer, L. J. (1996). Transient and persistent hypochondriacal worry in primary care. *Psychological Medicine, 26,* 575–589.

Salkovskis, P. M., & Clark M. (1993). Panic disorder and hypochondriasis. *Advances in Behavior Research and Therapy, 15*, 23–48.

Salkovskis, P. M., & Warwick, H. M. C. (1989). Morbid preoccupation, health anxiety and reassurance: A cognitive-behavioral approach to hypochondriasis. *Behaviour, Research and Therapy, 24,* 597–602.

Schmidt, A. J. M. (1994). Bottlenecks in the diagnosis of hypochondriasis. *Comprehensive Psychiatry, 35,* 306–315.

Stern, R., & Fernandez, M. (1991). Group cognitive and behavioural treatment for hypochondriasis. *British Medical Journal, 303,* 1229–1231.

Warwick, H. M. C., Clark, D. M., Cobb, A. M., & Salkovskis, P. M. (1996). A controlled trial of cognitive-behavioral treatment of hypochondriasis. *British Journal of Psychiatry, 169,* 189–195.

Warwick, H. M. C., & Salkovskis, P. M. (1990). Hypochondriasis. *Behaviour Research and Therapy, 28,* 105–117.

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Efficacy of Problem-Solving Training and Cognitive Exposure in the Treatment of Generalized Anxiety Disorder: A Case Replication Series

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Recent advances in our understanding of worry and generalized anxiety disorder (GAD) have led to the development of efficacious treatments for GAD. Although multidimensional treatment packages have shown efficacy, we know little about the efficacy and clinical utility of individual treatment components. This study evaluates the efficacy of problem-solving training and cognitive exposure for the treatment of GAD. Eighteen primary GAD patients received 12 sessions of cognitive-behavioral therapy in a case replication series. Treatment was individualized according to the main worries of patients and consisted of either problem-solving training for worries concerning current problems, or cognitive exposure for worries concerning hypothetical situations. Results show that both treatments led to statistically significant improvements on all outcome measures. Stringent clinically significant outcome at posttest was reached by 73.3% of patients that completed treatment. Furthermore, gains were maintained at 6-month follow-up. Consistent with current treatment models of GAD, these results suggest that problem-solving training and cognitive exposure are efficacious treatment components for GAD.

O VER THE PAST 20 YEARS, theoretical and clinical advances in our understanding of worry and generalized anxiety disorder (GAD) have led to the development of efficacious treatment packages for this disorder (e.g., Barlow, Rapee, & Brown, 1992; Borkovec & Costello, 1993; Butler, Fennel, Robson, & Gelder, 1991). However, although statistically significant improvements have been found in several studies, clinically significant improvement has generally been disappointing, with only about 50% of patients reaching high endstate functioning following treatment (see Borkovec & Whisman, 1996). These less-than-optimal results have been explained in part by the use of variable diagnostic inclusion criteria in earlier studies (Butler & Booth, 1991), and the use of treatment strategies that have been used for many disorders in most

studies (Brown, Barlow, & Liebowitz, 1994). These results have led several authors to suggest that active ingredients in the treatment of GAD have yet to be clearly identified (Barlow et al., 1992; Borkovec & Costello, 1993), and that the impact of treatments specifically designed to target excessive worry has yet to be established (Brown et al., 1994). As stated by Borkovec, Newman, Pincus, and Lytle (2002), "It is unclear what the relative contributions are of the cognitive and behavioral components commonly included in CBT packages" (p. 288).

Based on the accumulating knowledge in applied research on GAD, Dugas, Gagnon, Ladouceur, and Freeston (1998) have proposed a cognitive-behavioral model of GAD that has implications for the treatment of this disorder. The model's main features are intolerance of uncertainty (IU), positive beliefs about worry, negative problem orientation, and cognitive avoidance. IU has been defined as a cognitive bias that affects how a person perceives, interprets, and responds to uncertain situations on a cognitive, emotional, and behavioral level (Dugas et al.,